

(No Model.)

W. D. WILDER & W. COBB, Jr.

TIME REGISTERING DEVICE FOR ELECTRICAL CURRENTS.

No. 464,540.

Patented Dec. 8, 1891.

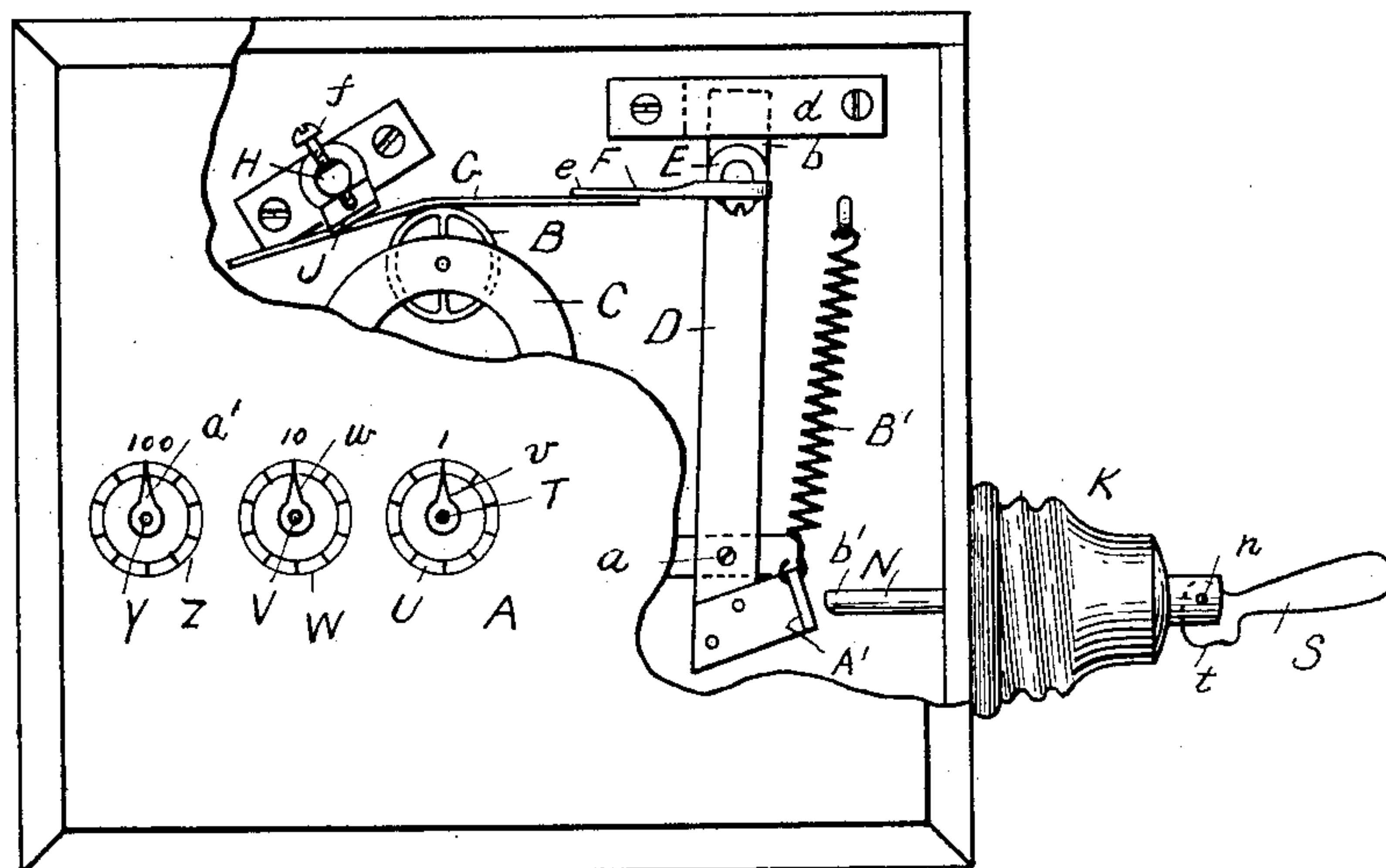
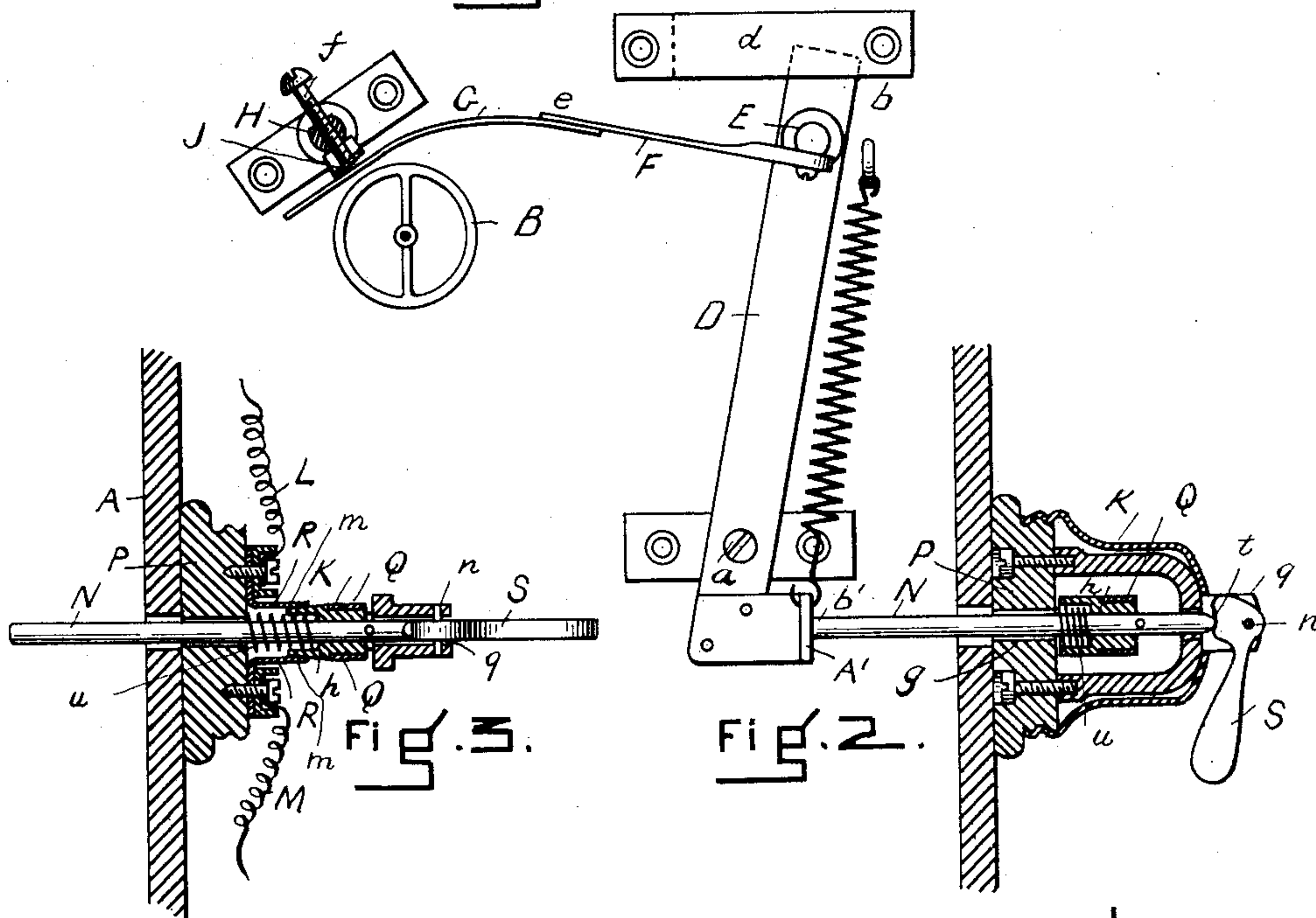


Fig. 1.



WITNESSES.

Geo. E. Fowle Jr.

Frank Paul.

INVENTORS.

William D. Wilder.

Walter Cobb, Jr.

Per Edwin W. Brown.  
Attorney.



# UNITED STATES PATENT OFFICE.

WILLIAM D. WILDER AND WALTER COBB, JR., OF BROCKTON,  
MASSACHUSETTS.

## TIME-REGISTERING DEVICE FOR ELECTRICAL CURRENTS.

SPECIFICATION forming part of Letters Patent No. 464,540, dated December 8, 1891.

Application filed November 13, 1889. Serial No. 330,145. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM D. WILDER and WALTER COBB, Jr., of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Time-Registering Devices for Electrical Currents, of which the following is a full, clear, and exact description.

The object of the present invention is to register the length of time an electric light is burning or an electric motor is being used or an electric current is being used for any purpose; and the invention consists in the combination, with an electric switch or other device for making and breaking the circuit of an electric current, of a device for registering the numbers of hours or the length of time the electric current is on or off or the electric circuit is closed or open, all substantially as hereinafter fully described, reference being had to the accompanying sheet of drawings, in which is illustrated the present invention.

Figure 1 represents in front view a time-registering device in connection with a switch of an electric circuit. Fig. 2 is a view of the operating parts in front view, similar to Fig. 1, but as changed in position with the electric switch mechanism in longitudinal central section. Fig. 3 is a longitudinal central section of the electric-switch device at right angles to that shown in Fig. 2.

In the drawings, A represents a box, in which is located and supported a clock mechanism and the working parts of the present invention.

B is the balance-wheel of the clock mechanism pivoted in the frame C, the other parts of the clock mechanism not being deemed necessary to describe or show, such being well known.

D is a vertical arm pivoted at *a* to the back board of the box, its upper end *b* lying in a groove in a support *d*, in which it can freely slide back and forth and be guided therein when swung on its pivot. Secured to a forwardly-projecting stud E of the arm D is a horizontal arm F, extending to the left, and having secured to its free end *e* by rivet or otherwise a flat spring-arm G, which extends therefrom to, over, and beyond the

balance-wheel B, being in the same vertical plane.

H is a post projecting forward from and secured by screws to the back board and having secured on its under side by screws or rivets a flat spring-strip J, which lies along the under side of the post H. Screwing down through the post H is a screw *f*, its inner end arranged to bear against the spring J to press it down against its tension when properly turned therefor to regulate its distance therefrom at its free end.

K is an electric switch between and connecting the two electric wires L M, which at their other ends are connected to any suitable battery or other means for producing an electric current, the switch being constructed substantially as follows for making and breaking the electric circuit.

N is a rod adapted to freely slide in bearings *g* of the base P, secured to the box and having attached thereto a square wooden block *h*, having a cap or ferrule of metal Q at one end surrounding the same.

R R are two right-angular spring-metal plates secured to the base P, one each side of the rod, their free arms *m* projecting toward the block and arranged to bear thereon, one on each side, and each connected to its respective electric wire, but insulated from each other.

S is a lever pivoted at *n* in a slot *q* in the outer end of the casing or bearing for the rod, having a cam-edge *t*, against which the rod N is held by a spiral spring *u*, surrounding the rod and pressing against the base P and block *h* of the rod.

With the lever S in the position shown in Fig. 1 the shorter part of its cam *t* is opposite the rod, so that then the spring *u* will act upon the rod to force it outward, so that the metal springs *m* will not be in contact with the metal ferrule on the block, but lie on the exposed wood portion *n* of the block, as shown in Fig. 3 more particularly, but swinging the lever into the position shown in Fig. 2. The rod is pushed in by the cam *t*, the metal ferrule of the block moving into position between the two spring-arms *m*, which then bear thereon, making the electric circuit complete for



the electric current to pass along the wires L M, the rod being held in such position by the lever until it is moved back to allow the rod to be forced back by its spring and its metal ferrule out from between and in contact with the springs R, breaking the electric circuit, all as usual in electric switches.

Outside of the box and secured to the shaft T of the clock mechanism, which in the present instance is the hour-hand shaft, is secured an index-finger *v* and a graduated circle U on the face of the front board to be used in connection with the index-finger, the circle being divided into tenths, each division representing a tenth of an hour. Connected to this shaft by suitable gearing is another shaft V, which carries an index-finger *w*, having a graduated circle W on the board divided into tenths, each tenth representing an hour, and properly engaging with its shaft by suitable gearing is another shaft Y, having an index-finger *a'* and a graduated circle Z on the board divided into tenths and each tenth representing ten hours.

Connected to an arm A' of the arm D, projecting forward therefrom and in front of the inner end *b'* of the switch-rod N is a spiral spring B, secured by its other end to the back board, the tension of which keeps the arm D in the position shown in Fig. 1 and returns it thereto if moved and otherwise free to return.

With the arm D in its normal position, as shown in Fig. 1, the end of its arm F, supporting the spring G, being in its lowest position, it forces the spring to bear upon the balance-wheel B, being held there by the position of the arm F and its pressing against the strip J, and with sufficient pressure to prevent the wheel turning, thereby stopping the clock mechanism, and consequently the registering device; but if the arm D is moved back or into the position shown in Fig. 2 it moves the end *e* of the arm F upward, raising the spring G from its bearing on the balance-wheel, leaving it free to move, so that the clock mechanism will then run and operate the registering device.

The operation and use of the device is as follows: When the electric light is desired to be burned or the electric motor or other electric apparatus to which this invention is connected is desired to be used, the rod N is moved forward by operating the lever S to make the electric circuit, as described, which at the same time presses by its end *b'* the arm D, swinging it on its pivot and moving its upper end to the right, which raises its spring-arm G from and freeing it of its bearing on the balance-wheel, as shown in Fig. 2, which then is free to move for the mechanism of the clock to operate the registering device. Accordingly, swinging the lever S back, the rod N is forced back by its spring, the electric circuit broken, and the spring G brought to bear upon the balance-wheel, being held there by its supporting-arm F and its bearing

against the strip J, stopping the clock-operating mechanism, and consequently the registering device. Thus with this invention combined with an electric switch and a registering device operated by suitable power the length of time the switch is on and the circuit made will be registered, so that the time the electric light is burning or an electric motor or any electrical apparatus is being operated will be registered and ascertained by the registering device.

As is obvious, the arm D can be connected directly to the rod N, thereby dispensing with its spring *b'*; also, any wheel or moving part of the clock mechanism can be used to which to connect the electric switch to start and stop the clock or other motive mechanism; also, the registering device can be connected in any suitable manner to the electric switch; also, any suitable motive power can be used for operating the registering device, and any suitable registering device can be used and made to register any desired intervals of time, the invention not being limited to any special registering device or its operating mechanism or the particular means herein described for stopping and starting the same or any particular manner of connecting the registering device to the electric switch, as it is obvious such can be made in various ways and accomplish the results of the present invention; also, in lieu of operating the registering device to register the time the electric current is on and operating, it can be arranged to register the time the electric current is off or not being operated, which is accomplished by simply reversing the parts—that is, have the switch when moved to make or close the circuit to operate the spring G to bear upon the balance-wheel to stop the clock mechanism, and when moved to break or open the circuit to operate the spring G to release the balance-wheel; but for most practical purposes it is preferable to use the invention as herein particularly described.

Having thus described our invention, what we claim is—

1. The combination, with a switch or other device for making and breaking an electric circuit, of a pivoted arm D, provided with a spring-arm G, a stop or abutment J on a suitable support, a wheel or other moving part of a clock or other operating mechanism, and a registering device, substantially as and for the purpose specified.

2. The combination, with a switch or other device for making and breaking an electric circuit, of a pivoted spring-arm D, provided with a spring-arm G, a stop or abutment J on a suitable support, a wheel or other moving part of a clock or other operating mechanism, and a registering device, substantially as and for the purpose specified.

3. The combination, with a switch or other device for making and breaking an electric circuit, of a pivoted spring-arm D, provided



with a spring-arm G, a stop or abutment J on a suitable support, a balance-wheel of a clock or other operating mechanism, and a registering device, substantially as and for the purpose specified.

5 4. The combination, with a switch or other device for making and breaking an electric circuit, of a pivoted arm D, provided with a spring-arm G, a regulating stop or abutment  
10 J on a suitable support, a wheel or other moving part of a clock or other operating mechanism, and a time-registering device, substantially as and for the purpose specified.

15 5. The combination, with a switch or other device for making and breaking an electric

circuit, of a pivoted arm D, provided with a spring-arm G, an arm H, having a spring-arm J and set-screw *f*, forming a stop or abutment, a wheel or other moving part of a clock or other operating mechanism, and a time-  
20 registering device, substantially as and for the purpose specified.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

WILLIAM D. WILDER.  
WALTER COBB, JR.

Witnesses:

EDWIN W. BROWN,  
GEO. E. FOWLE, Jr.